Practical work #6
Creating a final project for a NoSQL database

Project Goals:

- Apply NoSQL database principles to store and retrieve user data and product information.
- Implement a collaborative filtering recommendation system.
- Develop a user-friendly with personalized recommendations.
- Gain experience in performance testing and optimization.

Key (approximate) Features and Requirements:

1. ***User Registration and Profiles***: Users should be able to register, create profiles, and provide basic information.
2. ***Product Catalog:*** Create a catalog of products with attributes such as name, description, category, and price.
3. ***User History:*** Keep track of users' purchase history and interactions with products (views, likes, etc.).
4. ***Recommendation Engine:*** Implement a recommendation engine that suggests products to users based on their behavior and preferences.
5. ***Collaborative Filtering:*** Use collaborative filtering algorithms (user-based or item-based) to generate recommendations. You can choose to implement these algorithms from scratch or use a library.
6. ***Search Functionality:*** Implement a search feature that allows users to find products by name, category, or other attributes.
7. ***NoSQL Database:*** Choose an appropriate NoSQL database (e.g., MongoDB, Redis, Neo4j) for storing user profiles, product data, and user interactions.
8. ***Data Modeling:*** Design the database schema to store user data, product data, and interactions efficiently. Consider the trade-offs between different NoSQL data models.
9. ***API:*** Create an API for user registration, product catalog management, and retrieving product recommendations.
10. ***User Experience:*** Develop a user interface (web or mobile) for users to interact with the e-commerce platform and view product recommendations.
11. ***Performance Testing:*** Evaluate the performance of your recommendation system, especially as the database grows. Optimize queries for efficient retrieval of recommendations.

Project Deliverables:

- A detailed project proposal outlining the chosen NoSQL database, data modeling approach, and recommendation algorithm.
- A functioning with the recommendation system integrated.
- Documentation on how to set up and run the project.
- Performance analysis and optimization report.

- A presentation explaining your design choices and demonstrating the project.